

4. ENVIRONMENTAL CONSEQUENCES

The environmental consequences of implementing the 1983 Plan (Alternative A) or the alternative proposed Plans for Guntersville Reservoir (Alternatives B1, B2 and B3), are described in this chapter.

4.1 No Action Alternative (Alternative A)

4.1.1 Visual Resources

Visual consequences are evaluated in terms of the visible differences between an existing landscape and proposed land uses based on the visual characteristics, scenic values, viewing distances and viewing points available to the general public. This helps identify potential adverse changes in scenic character based on commonly held perceptions of landscape beauty and the aesthetic sense of place. While most human development around the reservoir has added visual discord to the landscape, a significant amount of natural shoreline, wooded hillsides, and bluffs remain.

The 1983 Plan has no allocation category for the preservation of visual resources on TVA public land. Under Alternative A, TVA would continue to conduct environmental reviews, including evaluation for potential visual impacts, prior to the approval of any proposed development on TVA public land. These reviews may prevent the most serious scenic disruptions or loss of visual resources by requiring mitigation measures that will reduce significant visual impacts. However, reliance on case-by-case environmental reviews of proposed actions under the 1983 Plan (Alternative A) would likely result in relatively little preservation of specific visual resources other than TVA public land set aside for management by other agencies. A slow but noticeable decline in scenic resources, aesthetic quality, and visual landscape character could be expected as residential, commercial, and industrial development demands continue to increase.

Incremental additions of water-use facilities may not be individually significant. However, when seen together with similar structures over a wide area, they contribute to a cumulative reduction of visual harmony and scenic integrity along the shoreline. In the absence of a land use category to protect visual resources, alteration of land with the least capacity to absorb visual change may continue. Visual shoreline congestion and related adverse contrasts would likely increase. The consequence would be a gradual reduction of scenic attractiveness which would negatively impact the visual landscape character and aesthetic sense of place. Scenic integrity of the predominantly natural shoreline would continue to decrease. Under Alternative A about 9,800 acres of significant visual resources are not currently protected, and another 17,000 acres of moderately scenic resources are not identified for visual resource conservation.

Alternative A could result in cumulative negative impacts including gradual losses of visual resources, scenic attractiveness, and undeveloped natural areas as well as adverse changes in the aesthetic sense of place. The overall result would be a continuing decrease in the visual quality of the naturally scenic reservoir landscape.

4.1.2 Cultural Resources

Archaeological Resources

Under the No Action Alternative, site-specific activities proposed in the future would be approved, mitigated, or denied according to the significance of the resource. If mitigation is required, appropriate archaeological investigation would be necessary, and potentially affected resources would be properly recorded and removed. The 1983 Plan does not provide for specific preservation of archaeological resources; however, TVA will comply with regulatory requirements of the National Historic Preservation Act (NHPA) and the Archaeological Resources Protection Act (ARPA).

Historic Structures

Under the No Action Alternative, site-specific activities proposed in the future would be approved, mitigated, or denied according to the significance of the historic structure. This would require a survey of the APE to determine what features exist on TVA public land or adjacent land.

4.1.3 Wetlands and Floodplains

Wetlands

Under the No Action Alternative (Alternative A), wetland areas would most likely remain largely unchanged although some emergent wetlands may gradually mature to scrub-shrub wetlands. Wildlife species using these wetland areas should remain unchanged.

Under either alternative, any proposed action would be subject to TVA environmental review and compliance with Executive Order 11990 (Protection of Wetlands). Selection of Alternative A would have a negligible impact on wetlands and associated functions and values on a regional or subregional basis. However, wetlands located on TVA public land allocated in the 1983 Plan for development of a commercial landing, commercial recreation, public recreation, or industrial use, while protected from most direct impacts through compliance with Executive Order 11990, could suffer indirect impacts to some functions and values on a local basis.

Floodplains

Under Alternative A, the development and/or management of properties would proceed under the 1983 Plan and evaluations would be done individually to ensure compliance with Executive Order 11988. Potential development would generally consist of water-use facilities and other repetitive actions in the floodplain that should result in minor floodplain impacts. Alternative A would likely have greater potential for adverse impacts to natural and beneficial floodplain values than the action alternatives because less land is allocated for resource management and conservation activities in the 1983 Plan. Under any of the alternatives, impacts to floodplain values would be insignificant.

4.1.4 Prime Farmland

Under Alternative A, prime farmland on parcels not allocated for development will continue to be protected. Under Alternative A, Parcels 26a, 59, and 173 (a total of 148 acres of prime farmland) would potentially be developed. Many of the parcels containing prime farmland were not included in the 1983 Plan. These parcels would be subject to case-by-case evaluation to determine if the proposed use would result in conversion of prime farmland.

4.1.5 Sensitive Plant and Animal (Threatened and Endangered) Species

Under the 1983 Plan (Alternative A), land was allocated to wildlife management and natural areas to protect sensitive terrestrial animal and plant species, sensitive ecological areas, or specialized habitats identified on land parcels. As stated in Section 3.2.4, additional occurrences of sensitive plant and animal species and their habitats were located on TVA parcels during 1999 and 2000 field surveys.

Under Alternative A, the land use allocation categories presented in the 1983 Plan would be retained for TVA parcels on Guntersville Reservoir. Occurrences of sensitive species on these TVA parcels would receive protection from future proposed TVA actions under existing environmental review procedures. TVA would continue to comply with the Endangered Species Act, ensuring that TVA actions would not result in significant, adverse impacts to rare species or their habitats. However, no new TVA Natural Areas, including Habitat Protection Areas created specifically for the protection of sensitive species, would be designated under the No Action Alternative.

There is some potential for fragmentation of the resource due to case-by-case land use actions and permitting, which, when given the dynamic characteristics of most animals, could result in cumulative loss of habitat over time. Thus, while TVA would continue to protect sensitive species during sure specific environmental reviews, there is some potential for indirect or cumulative impacts under the No Action Alternative.

4.1.6 Significant Natural Areas

The 1983 Plan, combined with the use of the current environmental review process for the proposed use of TVA public land, would address any potential impacts to sensitive resources from proposed activities. However, additional natural area designations would not be proposed.

4.1.7 Water

Under Alternative A, the extent to which a proposed land use might affect water quality depends on the nature and extent of development. Proposed land uses under the 1983 Plan are somewhat less restrictive than the proposed new zones. Future residential, industrial, and recreational developments on either TVA or private property have the potential to result in some degree of increased soil erosion due to clearing of woody vegetation and brush, increased runoff of agricultural/lawn chemicals, or increased sewage/septic loadings. Negative impacts to water quality associated with these activities may potentially include an increase in the levels of chemicals and substances toxic to aquatic life, an increase in turbidity, an increase in bacteriological concentrations, and further increases in nutrient loading. The various power plant options being considered for the Bellefonte Nuclear Plant site (see Section 1.3) would have the potential to affect water quality, although the specific details of water usage and cooling needs are not yet known. Runoff from power plant construction would be expected to be controlled by appropriate use of best management practices (BMPs).

Under the No Action Alternative, any proposed use of TVA public land would be evaluated on a case-by-case basis to ensure it fits the allocated use and that the proposed use best serves the needs and/or interests of the public. Reservoir water quality and shoreline protection may not be a primary consideration when land use decisions are made.

The use of vegetated buffer zones and other BMPs will minimize some damaging effects of riparian vegetation removal associated with development. In addition, protective measures presently in place under TVA's land use approval process and SMI (TVA, 1999a) will substantially offset impacts of development of private property. With the appropriate environmental reviews, future activities under Alternative A should not significantly impact the reservoir's water quality.

Navigation

The 1983 Plan identifies and allocates shoreline for 12 safety landings and harbors on Guntersville Reservoir. TVA prohibits the construction of water-use facilities and shoreline alternations within the marked limits of safety landings and harbors. The only acceptable shoreline alteration within these limits would be the placement of riprap for control of erosion. Under this alternative, the safety landings would continue to be available for use by the towing industry and private recreational vessels, and there would be no impact on commercial and recreational navigation.

4.1.8 Ecology

Terrestrial Ecology

Historically, TVA resource management activities have been planned and implemented as a means of demonstrating environmentally acceptable and cost-effective strategies for managing publicly owned natural resources. The majority of these activities have occurred on mainstem TVA reservoirs, with Board-approved Plans that were prepared based on technical data and public input. The long-term allocation of land for natural resource management under the wildlife and forest management categories has allowed TVA to invest time and money to maintain and enhance biological diversity, protect sensitive wildlife species, and provide public use and enjoyment of the terrestrial environment of this land.

Under the No Action Alternative, forested areas on TVA public land would remain forested and continue to mature, with forest wildlife species remaining relatively stable at current levels. As old fields and shrub areas continue to revert to forest, there will be a decrease in wildlife species dependent on these habitat types and an increase in forest wildlife species. TVA public land licensed for hay crops or livestock grazing and the wildlife species using them would likely remain unchanged, while areas managed for public access (i.e., dam reservations) can increase or decrease with TVA budget fluctuations.

Any major changes in use patterns under the 1983 Plan could create a corresponding change in vegetation and wildlife utilizing the affected parcels of land. However, these types of impacts would be localized and negligible on a regional or subregional basis.

Aquatic Ecology

Under Alternative A, fewer acres of TVA public land are allocated specifically for the protection of sensitive resources, and the extent of protection provided for natural resources on other allocated parcels is uncertain. Protection of the reservoir's natural shoreline may occur as a secondary result on parcels of TVA public land allocated for uses such as wildlife management and natural areas. Consequently, benefits to aquatic communities may not be a primary consideration when the land use decisions for those parcels are made.

Under the No Action Alternative, the quality of aquatic habitats associated with various land use allocations would remain similar to the existing conditions. Use of TVA public land below the 600-foot contour has been controlled by land rights of the adjacent property owners. As a result, residential development, as well as private development of private land adjoining TVA public land, has resulted in a loss of riparian woody vegetation at some sites where trees along the shoreline have been cleared and subsequent cumulative impacts to water quality and aquatic ecology. In some cases, clearing of trees and brush may have accelerated shoreline erosion and resulted in the placement of sea walls or other shoreline stabilization. Impacts have been less to shorelines lacking woody vegetation

(where aquatic habitat is poor); in fact, aquatic habitat may be improved by the placement of riprap or the construction of fixed docks at these nonvegetated locations.

4.1.9 Socioeconomics

Potential socioeconomic impacts could arise from use of reservoir TVA public land for industrial or commercial use and from the construction of water-use facilities. Effects may also occur if recreational or scenic values attract people from outside the area. Additional impacts may occur if residential development is attracted to areas on or near the reservoir.

Under Alternative A, almost 1,800 acres are currently allocated for industrial use; some unplanned parcels could also be used for industry. Some of the land for industrial use, however, would not likely be used for industry due to the presence of sensitive or other important natural resources. In addition, there are a number of small parcels which would most likely be used only for reservoir access to back-lying properties. However, there are several large tracts which could accommodate industrial or commercial developments that would have important impacts on the economy of the Guntersville Reservoir area. Reliable estimates of impacts cannot be made without specific information about development proposals. Any proposals for industrial or commercial use of TVA properties would receive appropriate environmental review when specific land use proposals are presented to TVA.

Over 4,300 acres of land are allocated for public or commercial recreation in the 1983 Plan. Several other areas are also used for informal, dispersed activities such as hunting, hiking, fishing, and primitive camping. Most activity of this type is by people who live in the general area, close enough that visits do not require overnight accommodations. However, there is and would continue to be some outside usage. Outside usage has a positive impact on income and employment in the area; however, this impact is not likely to be an important component of income in the area. In addition to informal recreation these properties with TVA approval could also be developed for more formal activities such as parks, boat-launching areas, and campgrounds.

Some of the land has deeded access rights and could be used to provide residential access to the lake, thereby encouraging residential development along and near the reservoir. While the residents of most such development would be persons who would otherwise live elsewhere in the area, some retirees would be attracted to such development especially if marketed to retirees. Attraction of retirees would result in some population increase and associated increases in local income and spending. Building of water access facilities might also have some positive impact on the local economy.

Some of the remaining land, such as reservoir operations or dam operations property, could be used for informal recreation purposes attracting primarily users

from the local area and surrounding counties. Such uses would have only small impacts on income and employment in the local area.

4.1.10 Recreation

A large portion of the TVA public land on Guntersville Reservoir—approximately 33,322 acres—is designated in the 1983 Plan for formal and informal public recreation uses (e.g., Public Use/Open Space/Unplanned Areas and Natural/Wildlife/Timber Management) such as bank fishing, picnicking, camping, bird watching, hunting, hiking, and horseback riding. A large portion of this land could remain undeveloped and managed indefinitely for informal recreation. There are several parcels that are currently designated for Public Recreation use which could be considered for development by TVA, another public agency, or the private sector as demand dictates.

The 1983 planning process did not comprehensively consider the scenic qualities, unique characteristics, and cultural or sensitive biological resources which affect how the TVA public land should be utilized. Continued use of the 1983 Plan will limit recognition of recent public input and application of current public values. The cumulative effects of selecting this alternative could result in less than optimal use of TVA public land for recreation and some reduction in potential long-term recreation benefits on Guntersville Reservoir.

4.2 Action Alternative (Alternatives B1, B2 and B3)

4.2.1 Visual Resources

Land with the greatest scenic qualities are the most desirable for public preservation but are also the most sought after for commercial and residential development. Alternatives B1, B2 and B3 would enhance the preservation and protection of sensitive visual resources by designating TVA public land with outstanding visual character as Zone 3, Sensitive Resource Management. The proposed Plan would preserve the most distinctive scenic areas on Guntersville Reservoir and would balance continued development with sufficient areas of unaltered shoreline to retain the attractive natural character.

Comparative scenic values of TVA public land were assessed during the ongoing planning process in order to identify areas for scenic protection and visual resource conservation. Land with distinctive visual characteristics such as the islands, rock bluffs, steep, wooded ridges, wetlands, and flowering shallow water areas were placed in Sensitive Resource Management (Zone 3). Land that provides valuable protective screening was also placed in this zone. Parcels that possess attractive visual resources of less significance were allocated to Natural Resource Conservation (Zone 4). This zone also includes land which provides important scenic buffers. Activities that involve little visible change, such as recreational hiking, picnicking, bank fishing, and some selective forest management, could take place under both zone allocations. Some development with more visible modifications could take place under the Zone 4 designation as

long as the location and appearance were subordinate to maintaining the desired visual characteristics. To further reduce the visual impacts of forest management, TVA would include in its unit plans measures to limit the size of harvests and to screen timber harvest areas from public thoroughfares.

The sensitive visual resources on 38 previously planned and unplanned parcels, totaling approximately 9,037 acres, were allocated to Sensitive Resource Management (Zone 3). This total includes about 710 acres of islands and about 330 acres of TVA shoreline land around two private islands. TVA parcels with the highest scenic value include Parcels 3, 24, 25, 27, 39, 88, 90, 98, 101, 104, 108, 126, 137, 162, 163, 166, 168, 171, 173, 174, 175, 177, 180, 182, 184, 193, 202, 211, 233, 269, 277, 282e, 282f, 282h. Some additional parcels allocated to Zone 3 specifically for sensitive cultural or wetlands resources also have moderately high scenic value.

A number of other parcels with desirable visual characteristics were identified for resource conservation and allocated to Natural Resource Management (Zone 4). Parcels with moderately high scenic value include Parcels 2, 4, 23, 103, 133, 136, 153, 155, 157, 160, 161, 169, 176, 187, 282c and 282g. Parcels designated for other zones which also have moderately high scenic value include Parcel 1, 109, 165, and 183. These areas include land with attractive but less unique scenic qualities and little if any visible alteration.

Several areas of the reservoir would benefit under the action alternatives. Scenic bluffs would be protected from development on the steep slopes above, and the natural character would be preserved along the water. The narrow section of shoreline backed by private development along Street Bluff would be preserved, where access to the water could be granted under Alternative A. Steeply sloping, natural woodland shorelines (such as the entry to Honeycomb Creek around Goat Island) would not be at risk of visual congestion from water-use facilities as they would under Alternative A. The exceptional scenic quality of islands surrounding the Connors Island peninsula would remain undisturbed and would continue to provide a distinct visual accent for the city of Guntersville.

The scenic character of major WMAs and wetlands would be preserved. Many islands around the reservoir would be protected from alteration which would preserve the scenic accent, attractive contrast, and visual richness they contribute to reservoir vistas. Timber management along the steep, wooded slopes of Sand Mountain would be more clearly defined, so the background views along the upper reservoir could be accurately predicted and would remain visually appealing. Major sections of the riverine, upper reservoir would be protected or screened from further development. This would preserve the variety of wooded, river, ridge landforms; linear channel islands with low trees; broad areas of shallow water; flowering plants; and steep, forest-covered mountainside along the east bank. The combined contributions of these attractive features would help sustain the scenic landscape character and aesthetically pleasing sense of place.

The need and importance of visual resource management was confirmed by public input during the land planning process. Comments summarized in the Public Participation Report (Appendix A-2) express concern for protecting natural resource areas, minimizing disposal of TVA public land, and for limiting both industrial and commercial development. People specifically expressed a preference for more protection of scenic areas, conservation zones, eroding shoreline, and land with unique features, as well as for more trails, undeveloped camping, and environmental study areas. These responses indicate a public appreciation of visual aesthetics along with a clear desire to encourage preservation of the area's natural resources and scenic attractiveness. All three action alternatives (Alternatives B1, B2 and B3) would be responsive to the public's expressed concern for visual quality. They would also respond directly to their expressed preference for more protection of scenic resources and undeveloped natural areas on TVA public land.

The primary difference between Alternatives B1, B2, and B3 would be that up to five new marina developments or expansions would be allowed under Alternatives B1 and B3. From an aesthetic standpoint, the marinas would visually contrast with natural shoreline nearby and further reduce scenic integrity in the selected areas. They would also contribute to the increased visual congestion of more boats on the reservoir. In addition, the expansion of Nickajack Port in Marion County would affect undeveloped land along a more riverine portion of the reservoir, and would be visible to boat traffic along that section. The Guntersville Airport expansion and resulting air traffic would be visible from shoreline recreation areas, boat traffic, and Alabama Highway 79 in the Claysville area. Overall, Alternative B1 could have a greater adverse impact on the visual landscape character and aesthetic sense of place, while the additional buffers included in Alternative B3 would reduce these impacts somewhat.

Alternatives B1, B2, and B3 would provide for the protection of scenic resources and preservation of natural areas around the reservoir over time. Scenic integrity would remain moderate or higher. Consequently, implementation of these action alternatives would provide enhanced protective management for visual resources and would help preserve the scenic landscape character of Guntersville Reservoir for long-term public enjoyment.

4.2.2 Cultural Resources

Archaeological Resources

Under Alternatives B1, B2 and B3, TVA would incorporate a phased identification and evaluation procedure to take into consideration the effects on archaeological resources. Early identification of archaeological resources and allocation to the appropriate land management zone (e.g., Sensitive Resource Management-Zone 3) would avoid potential adverse effects. This would in turn save time, reduce costs and ensure more efficient compliance with Section 106 of the NHPA than does Alternative A. Any activity that could affect archaeological

resources would require identification and evaluation surveys pursuant to 36 CFR § 800. TVA will comply with the following: the National Historic Preservation Act at 36CFR § 800, the Archaeological Resources Protection Act at 18 CFR § 1312, and the Native American Graves Protection and Repatriation Act.

Archaeological resources have been identified in all land plan zones. Alternatives B1, B2 and B3 place approximately 87 percent of identified archaeological resources in Zone 3 (Sensitive Resource Management) and Zone 4 (Natural Resource Conservation) where TVA would emphasize preservation and protection. Approximately 13 percent of the archaeological resources are on land allocated to Zone 2 (TVA Project Operations), Zone 5 (Industrial/Commercial), Zone 6 (Developed Recreation) and Zone 7 (Residential Access). Activities proposed in Zones 2 through 7 would require further environmental and Section 106 review prior to the implementation of a project.

Approximately 2.2 percent of the land planned has been intensively surveyed. The majority of the land (85.86 percent) has been opportunistically surveyed for archaeological resources while the remaining land (11.94 percent) has not been surveyed. Under either alternative, the land that has not been investigated will require a systematic survey in order to identify and evaluate any archaeological resources that may exist. If a land use proposal has the potential to affect archaeological resources, then TVA in consultation with the SHPO and other consulting parties would conduct further evaluations to determine the resources' eligibility for inclusion in the NRHP and appropriate review under Section 106 of the NHPA would be conducted.

Alternatives B1, B2, and B3 propose differing zone allocations for thirteen parcels that contain approximately 795 acres. There are sixteen known archaeological sites located within the 795 acres in question. Alternatives B1 and B3 would place twelve of these sites in recreation and four sites in industrial/commercial development. Alternative B2 would place the sixteen known archaeological sites and any unrecorded archaeological sites into natural resources conservation. Alternative B2 would protect more historic properties by reducing the potential for adverse effects that may be associated with industrial or recreational development.

A Programmatic Agreement (PA) has been executed for the identification, evaluation and treatment of historic properties that are eligible for inclusion in the NRHP on Guntersville Reservoir within the state of Alabama. The agreement addresses TVA public land and other land that could be affected by Federal undertakings associated with the reservoir land management plans in Alabama.

A PA is under development and will be executed for the identification, evaluation and treatment of historic properties that are eligible for inclusion in the NRHP on Guntersville Reservoir within the state of Tennessee. It is likely this PA will not be finalized when TVA makes a decision on this land management plan. In the interim, TVA would comply with Section 106 of the NHPA in a phased manner

pursuant to the revised regulations set forth by the Advisory Council on Historic Preservation at 36 CFR § 800. The SHPO, in a letter dated June 19, 2001 agrees with this phased approach.

The National Register eligibility for identified historic properties will be evaluated in consultation with the Alabama and Tennessee State Historic Preservation Officers (SHPO) and other consulting parties according to stipulations of the PA. Furthermore, mitigation of adverse effects to any historic property will be conducted according to the stipulations in the PA.

Historic Structures

Under Alternatives B1, B2, and B3, all uncommitted TVA public land with historic structures would be allocated to Zone 3 (Sensitive Resource Management) or Zone 4 (Natural Resource Conservation) for protection. Committed land in Zone 2 (TVA Project Operations), Zone 5 (Industrial/Commercial), Zone 6 (Developed Recreation) and Zone 7 (Residential Access), has been surveyed, and all significant historic structures on and adjacent to these TVA parcels have been identified. Alternatives B1, B2 and B3 place more historic resources than Alternative A in land use categories that will provide cultural resource protection. Under all alternatives, review for applicability of the NHPA would take place for any proposed activities that have the potential to affect historic resources identified on or adjacent to TVA public land (Table 3-1).

4.2.3 Wetlands and Floodplains

Under Alternatives B1, B2, and B3, significant wetland areas with especially substantial ecological functions and values would be allocated to Sensitive Resource Management (Zone 3). Zone 3 is designed to emphasize management strategies that preserve and enhance the functions and values of these wetlands resources. Therefore, these alternatives would have a beneficial effect on wetland resources on TVA public land.

Under Alternatives B1, B2, and B3, all wetlands would be protected from adverse alteration through compliance with Executive Order (EO) 11990 (Protection of Wetlands), Section 404 of the Clean Water Act and TVA's implementing procedures. Consistent with these procedures, TVA will, to the extent practicable, take measures to either avoid adverse impacts to wetlands, including minimizing, or mitigating unavoidable effects on wetlands from use or disposal of its land. Alternatives B1, B2 and B3 would provide for a greater cumulative beneficial effect to wetlands on TVA public land than Alternative A.

Parcels with wetlands potentially affected by land use requests under Alternatives B1 or B3 include 26a and 167. Impacts to wetlands in tracts allocated to these and other parcels in Zones 2, 5, 6 or 7 would be mitigated through measures undertaken through compliance with EO11990 and Section 404.

Under Alternatives B1, B2 and B3, approximately 81 percent of the TVA public land acreage would be allocated to either Zone 3, Sensitive Resource Management (25.5 percent), or Zone 4 (55.5 percent), while only 19 percent could be used for more intensive development. Because of their sensitivity to effects of disturbance, land where wetlands are known to occur were allocated to Zone 3. This would tend to reduce the potential for direct and indirect impacts. In addition, wetlands that are at or below elevation 595 msl would not likely be directly or indirectly adversely affected by activities on TVA public land because, where practicable, buffer zones would be maintained along the shoreline. Consistent with TVA's SMP, residential shoreline development would be permitted where adverse effects could be avoided or minimized. Any activities along the shoreline, such as docks or boat ramps, associated with residential access (including Zone 7), are not likely to be approved in wetland areas without appropriate mitigation. Therefore, anticipated effects on wetlands would be negligible and regionally insignificant. Because no anticipated net loss of wetlands would occur over the life of the plan, no negative cumulative effects or adverse effects on regional trends are expected.

4.2.4 Prime farmland

Prime Farmland is defined as land which has the chemical and physical properties for economic production of sustained high yields of crops. Under the Farmland Protection Policy Act, Form AD 1006, "Farmland Conversion Impact Rating" would be completed prior to conversion of farmland to non-agriculture land use. This rating is based on soil characteristics in addition to site assessment criteria.

County Soil Surveys were used to determine the prime farmland soils on parcels with the potential to be permanently converted to non-agricultural land use. The State Soils Geographic Data Base (STATSGO) published by the USDA-NRCS was used to determine generalized areas of prime farmland on parcels allocated to Zones 2, 3, and 4. Since Zones 3 and 4 inherently protect farmland and land allocated to Zone 2 has previously been allocated for a use that would convert prime farmland there would be no additional impacts to prime farmland on these parcels

The "Farmland Conversion Impact Rating" for TVA public land on Guntersville Reservoir was completed with assistance from USDA-NRCS staff in Decatur, Alabama (Appendix D). For Marshall County, relative farmland value scored 71, and site assessment scored 68, for a total rating of 139. Jackson County parcels have a relative farmland value of 69 and site assessment score of 68 for a total impact rating of 137. The site assessment criteria consists of agriculture and urban infrastructure, support services, farm size, compatibility factors, on-farm investments and potential farm production loss to the local community and county. Sites receiving a rating of 160 or more must be given a higher level of consideration for protection..

Under Alternatives B1, B2, or B3, most of the TVA agricultural licenses are located on parcels that are proposed for allocation to Zone 3, Sensitive Resource

Management, or Zone 4, Natural Resource Conservation. The exceptions are Parcel 1 (Zone 2), Parcel 167 (Zone 5) and Parcels 195, 243, and 270 (Zone 7). Only two of the parcels with agriculture licenses proposed for allocation to Zone 5, 6, or 7 contain prime farmland soils. About 11 acres or 58 percent of the area in Parcel 167, licensed for hay, is prime farmland. This would not be converted under Alternative B3. All 9.9 acres of Parcel 243 which is licensed for hay and sod are classified as prime farmland. Of the 199 acres of land licensed for hay production on Parcel 1 which is zoned for TVA Project Operations (Zone 2), 80 acres are classified as prime farmland. However, TVA currently has no plans to convert this farmland to other uses.

Alternatives B1 and B3 allocate 26 parcels containing prime farmland to Zones 5, 6, and 7. These parcels contain 557 acres of prime farmland soils. Twenty-three of these parcels (558.7 acres) were not included in the 1983 Plan, and nine of these are allocated for Residential Access (Zone 7). There are 14 parcels allocated for Developed Recreation (Zone 6) and six for Industrial/Commercial (Zone 5). About 29 acres of Parcels 167 and 243 are held in agriculture license commitments for hay and/or sod production. Most of this acreage is prime farmland.

Under Alternative B1 and B3, Parcels 167, 172, and 200a are proposed for commercial or recreational development. These proposals may affect up to 75 acres of prime farmland soils. Under Alternative B2, these parcels would not be developed. They would be allocated to Zone 4, which would protect prime farmland soils.

Alternatives B1, B2, and B3 would allocate three large prime farmland parcels, Parcels 26 and 26a (541.9 acres), Parcel 59 (80.9 acres), and Parcel 207 (91.9 acres) to Natural Resource Conservation (Zone 4) and Parcel 173 (73.5 acres) to Sensitive Resource Management (Zone 3). These allocations respond to the desire of the public to increase the protection of the natural resources surrounding the reservoir.

Since the Farmland Conversion Impact Rating for TVA public land on Guntersville reservoir was below the threshold level of 160 (Section 3.2.3), the development of these parcels would have an insignificant impact on prime farmlands.

4.2.5 Sensitive Plant and Animal (Threatened and Endangered) Species

Under Alternatives B1, B2, and B3, land with identified sensitive terrestrial animals, their habitats, and sensitive ecological areas is allocated to Zone 3 (Sensitive Resource Management) or Zone 4 (Natural Resources Conservation) for protection. Nesting osprey, caves, and heronries, and other such natural resources are given buffer zones to protect them from encroachment due to commercial or shoreline development.

Federal-listed species, such as the bald eagle, would benefit from Alternatives B1, B2, and B3. Inventories conducted on Guntersville Reservoir identified habitats suitable for use by bald eagles as either winter roosting habitat or possible nesting sites at multiple locations. The criteria used to characterize this habitat as suitable include the presence of mature, hardwood woodlands and the absence of human development or disturbance. Under Alternatives B1, B2, and B3, most of these sites would be placed in Zone 3 or Zone 4. Other suitable habitats were located on parcels committed to Zone 7 (Residential Access). Bald eagles habitat or nesting sites are not included in the land proposed for allocation to Zone 2 for the proposed Guntersville Airport expansion. Under the SMI, TVA is committed to categorize residential shoreline to ensure protection of sensitive resources. Residential shoreline with identified sensitive resources and/or suitable habitat has been placed in the Shoreline Protection Category (see Section 1.3 for an explanation of shoreline categorization).

Alternatives B1, B2, and B3 protect several large areas containing a variety of habitats described in Section 3.2.4 including mature deciduous woodlands, wetlands, woodland rock outcrops, karst features, woodland ponds, old fields, and pine woodlands which provide potential habitat for protected species. Large, lowland areas protected due to cultural resource concerns may also protect many of these species. Therefore, these alternatives would afford these species and/or habitats additional protection beyond the current 1983 Plan. Alternative B2 has the advantage that additional natural habitat would be protected in Zone 4. Additionally, quality of habitats can vary over time causing areas currently considered as marginal and possibly not protected to improve in quality. Environmental reviews associated with future proposed use of TVA public land will determine if such sites have been inhabited by any state- or federal-listed species. This process would ensure that TVA actions implementing the proposed Plan would not likely adversely affect endangered or threatened species. If any forest or wildlife management is proposed on zones 3 or 4, these sensitive natural features and unique habitats would be protected.

Even though sensitive species would be protected on TVA public land, there is potential for habitat impacts on private land through the activities of individuals and others along the private land surrounding Guntersville Reservoir. In addition to continued development of industrial parks and residential subdivisions in Jackson and Marshall Counties, there are potential habitat impacts through federal, state, and county road and bridge construction projects on reservoir embayments and tributary streams. Most of these potential aquatic habitat impacts would be controlled by Section 26a and Section 404 permitting processes on tributary streams.

4.2.6 Significant Natural Areas

Field surveys were conducted between December 1999 and July 2000. The purpose of the surveys was to evaluate the parcels for their scenic and aesthetic qualities, ecological significance, and suitability for designation as a TVA Natural

Area. TVA Natural Areas include Small Wild Areas (SWA), Habitat Protection Areas (HPA), Ecological Study Areas, and Wildlife Observation Areas. Under Alternatives B1, B2 and B3, all four types of Natural Areas are included in Zone 3, Sensitive Resource Management.

Small Wild Areas are sites with exceptional natural, scenic, or aesthetic qualities which are suitable for low-impact public use (walking, hiking, birding, and photography). Examples include concentrations of wildflowers, high bluffs with long views, geologic features (other than caves), waterfalls or dripping rock ledges, and mature or “undisturbed” forests. Access by public road is preferred.

Habitat Protection Areas are established to protect populations of species that have been identified as threatened or endangered by the USFWS or that are rare to the state in which they occur. Unusual exemplary biological communities or unique geological features also receive protection in this category (examples are bat caves, rare plant/animal habitat).

Wildlife Observation Areas are sites that have concentrations of viewable wildlife—shorebirds, songbirds, white-tailed deer, migratory hawks, monarch butterflies, turkey, raccoons, etc. (drawdown zones, dam reservations, urban wetlands, bluffs). Public access to these sites is a requirement for designation.

Ecological Study Areas consist of sites judged suitable for ecological research or environmental education. Such areas typically contain plant or animal populations of scientific interest or are usually located near an educational institution that will use the area. The area should have potential benefit to the local educational community.

The following criteria were used to evaluate each parcel for its potential for TVA Natural Area designation:

- *Aesthetics*—the presence of unique natural features (waterfalls, mature trees, wildflower displays, concentrations of observable wildlife, panoramic views).
- *Solitude*—the measure of a parcel’s isolation from developed landscapes and its ability to provide a quiet place in the natural world without the background sounds of urban, industrial, and residential activities.
- *Access*—the ease of access from public roads, the ease of development of parking areas, as well as a determination of whether the topography of the parcel is favorable for trail development.
- *Ecological integrity*—the capability to protect the resource, minimize visual intrusions, exclude incompatible uses and the presence or absence of invasive, exotic species.

- *Environmental Education and Scientific Research*—the site’s potential to be used for wildlife viewing opportunities, environmental education, and scientific research. These are often unique or uncommon ecological communities or habitats important to migratory wildlife or easily observable species.
- *Threatened and Endangered Species Habitat*—the known occurrence of plant or animal species with federal or state status.

The 1999-2000 field studies identified three new areas on TVA public land as suitable for designation as a TVA SWA, including a portion of Buck Island (Parcel 39), a portion of Sand Mountain (Parcel 184) and Bellefonte Island (Parcel 182):

Parcel 39—A portion of this parcel (approximately 250 acres) is suitable for a TVA SWA, primarily, because of the numerous terrestrial community types that are present. In addition to providing suitable habitat for an Alabama state-listed plant species this parcel contains steep hillsides and hollows that support mature hardwoods including significant numbers of American beech trees. In particular, one of the areas contains American beech trees 2 feet in diameter which, when hollow, can provide high quality habitat for a variety of wildlife species. Mature oaks and hickories are also present enhancing the variety of habitats available for wildlife. The occurrence of numerous spring wildflowers offers a spectacular display that may be suitable for interpretive activities such as spring wildflower hikes. In addition, at least one Alabama state-listed plant species is known to occur within this SWA and has been further protected through HPA status. Because developmental pressures and residential encroachment continue to threaten the ecological integrity of this parcel, the TVA SWA designation on a portion of it will complement and enhance the surrounding land uses by providing solitude, easy accessibility, and wildlife viewing opportunities.

Parcel 184—This parcel (approximately 600 acres) is located on Sand Mountain along the eastern side of Guntersville Reservoir. The site is characterized by steep forested slopes primarily comprised of various hardwoods. The overall ecological integrity of this parcel is excellent as exemplified by the mature tree canopy and a highly diverse and intact understory in most portions of the parcel. Numerous sandstone bluffs and outcrops provide habitat for woodland amphibians including an Alabama state-listed salamander and numerous rare plant species. This habitat is uncommon on TVA public land around Guntersville Reservoir, and this site is suitable to be managed as a TVA SWA. Preservation of this parcel would also maintain a high quality view from the opposite shoreline. This

parcel's unique set of uncommon ecological and geological features, aesthetic value, and isolation all combine to make for an exceptional TVA SWA.

Parcel 182—This parcel, known as Bellefonte Island, is comprised of approximately 100 acres and supports a naturally occurring mature stand of tupelo-gum. Other tupelo-gum stands have become established in low-lying shoreline areas, but this island stand is by far the one of highest quality. This site is also visually significant, providing the public with the opportunity to enjoy one of the most characteristic southern swamp tree species. This regionally uncommon, native community type can provide habitat for numerous species of waterfowl while providing wildlife observation opportunities. This site is designated as a TVA SWA.

Several parcels or portions of parcels of public land surrounding Guntersville Reservoir contained significant communities of rare plants and animals. Eight sites located throughout the reservoir were designated as TVA HPAs (Table 4-2). In addition, the boundary of the TVA Honey Bluff HPA was extended to further protect a federal-endangered mammal at Hambrick Cave and newly discovered populations of an Alabama state-listed plant found on Honey Bluff. These species and their habitats are described in the Threatened and Endangered Species Section of this report.

Table 4-1 Proposed Natural Areas on TVA Public Land on Guntersville Reservoir under Alternatives B1 and B2, including Small Wild Areas (SWA) and Habitat Protection Areas (HPA)

Parcel Number	Name	Acres	Reason for Protection
3	Hambrick Hollow HPA	120	2 Alabama State-listed Plants
3	Honey Bluff HPA	Added 40 acres to existing HPA	Alabama State-listed Fern
5	Thompson Hollow HPA	20	Alabama State-listed Fern
39	Buck Island SWA & HPA	250 SWA 30 HPA (within Buck Island SWA)	Alabama State-listed Plant
124	Dry Creek HPA	40	Alabama State-listed Plant
193 (south)	Lakeshore HPA	30	Alabama State-listed Plant
193 (north)	Chisenhall Spring HPA	120	2 Alabama State-listed Plants
182	Bellefonte Island SWA	100	Tupelo Gum Swamp
184	Section Bluff SWA	600	4 Alabama State-listed Plants and 1 Alabama State-listed Animal
223	Polecat Creek HPA	20	Alabama State-listed Plant and Animal
266	Beech Creek HPA	20	2 Alabama State-listed Plants

Under Alternatives B1, B2, and B3, the TVA environmental review process would continue to be used to address potential impacts of actions on TVA public land to sensitive resources. These alternatives provide enhanced protection of significant natural features, rare plants, and rare animals through the allocation of land to Zone 3 (Sensitive Resource Management) and Zone 4 (Resource Conservation). By identifying significant Natural Areas and protecting them from development, selection of any of these alternatives would have a beneficial effect on the preservation of Ecologically Significant features on TVA public land and in the region. In addition, these alternatives address public requests for greater protection of endangered species, natural land, and land with unique features by protecting such areas as TVA SWAs and HPAs. In addition, there would be increased opportunities for wildlife observation, wildlife management, and conservation zones. As indicated by public responses through questionnaires and public meetings, managing more TVA public land under Sensitive Resource Management and Natural Resource Conservation Zones would address public land use preferences. Alternatives B1 and B3 may result in different Zone allocations than the Zones designated under Alternative B2. Any proposed action under either Alternative B1, B2, or B3 would be subject to the environmental review process. At that time, compatibility of the proposed action and management objectives for any subject TVA Natural Areas lands would be evaluated. Alternative B2 would protect the most TVA public land in a natural state.

4.2.7 Water

Alternatives B1, B2, and B3 provide a better opportunity to protect water quality by identifying Sensitive Resource Management and Natural Resource Conservation Zones (Zone 3 and 4, respectively) as the designated use on some parcels that have a more general land use (such as open space or natural areas) in the 1983 Plan. Environmental reviews for any proposed use of land would require the protection of water quality either through restricted development or the assurance to use BMPs that would minimize negative impacts. Alternatives B1, B2, and B3 respond to the public's desire for increased protection of natural resources and water quality, as indicated by survey data collected for this environmental review and by input at the public scoping meeting.

Shoreline development on private property would likely increase under any alternative. Additional development in the Industrial/Commercial (Zone 5), Developed Recreation (Zone 6) and Residential Access (Zone 7) Zones would have the greatest potential to result in increased runoff from agricultural/lawn chemicals and in increased sewage/septic loadings. Although PCBs are still used in some industrial equipment, it is expected that any new commercial or industrial development would not release PCBs and therefore sediment contamination at the reservoir forebay would not be expected to worsen. Negative potential impacts to water quality associated with commercial, residential, or recreational development activities may include increased turbidity, increased levels of substances toxic to

aquatic life, increased bacteriological concentrations, and a further increase in nutrient loading.

Activities in Zone 2 (TVA Project Operations) also have the potential to affect water quality under the action alternatives. Most zone 2 land are used for the dam reservation and various local utility water intakes and facilities. The various power plant options being considered for the Bellefonte Nuclear Plant site (see Section 1.3) would have the potential to affect water quality, although the specific details of water usage and cooling needs are not yet known. Runoff from power plant construction would be expected to be controlled by appropriate use of BMPs. In addition, the Guntersville Airport expansion under Alternative B1 and B3 could potentially affect water quality near the reservoir. However, the primary impacts from airport construction are likely to be from runoff, as TVA does not plan to allow any reservoir filling to accomplish the airport project. Runoff impacts can likely be minimized by the use of vegetative buffers and runoff control measures.

Activities in Zones 3 and 4 also have the potential to affect water quality, although to a lesser extent. Forest and wildlife management activities, and agricultural uses would be allowed with rigorous implementation of BMPs to control soil erosion and with designated streamside buffers.

Navigation

There would be minimal impact on navigation, safety landings, and harbors under Alternative B1, B2, or B3. The additional marinas proposed under Alternative B1 would likely increase boat traffic.

4.2.8 Ecology

Terrestrial Ecology

Under Alternatives B1, B2, and B3, approximately 93 percent of TVA public land on Guntersville Reservoir is allocated to three land use zones; TVA Project Operations (Zone 2), Sensitive Resource Management (Zone 3), and Natural Resource Conservation (Zone 4). The management of this land under Alternatives B1 or B2 would be enhanced by the preparation of unit management plans which would provide a long-term resource management strategy specifically for this land. Approximately 800 additional acres would be allocated to Zone 4 under Alternative B2 than under B1.

The following types of activities could occur on these parcels within a given unit:

- Vegetation management including forest management to improve the diversity of tree species and sizes, to encourage growth and maturation of fruit and nut-producing trees, to develop wildlife openings, and to protect snags and wildlife nesting cavities.

- Open land management to provide a diversity of vegetation ranging from planted, warm-season native grasses to old fields and shrub edges.
- Wetland management to protect and/or enhance the hydrology, soils, and vegetation as well as to improve overall functions and values.
- Riparian management to allow the development of native vegetation or restoration of riparian vegetation through soil bioengineering.

It is expected that these activities could occur without negative terrestrial or aquatic ecological effects if the size of vegetation management areas were limited, sensitive resources and features were avoided, and appropriate soil erosion controls implemented.

The remaining 7 percent of TVA public land on Guntersville Reservoir is proposed for allocation to Zone 5 (Industrial/Commercial), Zone 6 (Developed Recreation), and Zone 7 (Residential Access). As explained in Section 1.3 in this EIS, land in the Residential Access Zone has been categorized as shoreline protection, residential mitigation and managed residential under the TVA SMP. Review of private water-use facility requests in Zone 7 would include assessment of the site's shoreline categorization status to ensure that impacts to terrestrial ecological resources would be negligible. Under Alternatives B1, B2, or B3, parcels allocated for Developed Recreation (Zone 6) have no known sensitive, terrestrial resources. Therefore impacts from development of formal recreation areas would not be significant.

The general mix of TVA forest land and open land in the counties surrounding Guntersville Reservoir is expected to remain relatively unchanged in the near future. Privately owned forests and open land are, however, likely to be subject to increased development pressure. By maintaining more than 90 percent of TVA public land in forested and open-land parcels, implementation of Alternatives B1, B2, or B3 could offset some cumulative effects of development and fragmentation on nearby private land. Because of the relatively small acreage of TVA public land surrounding the reservoir, the choices for management of public land would be unlikely to influence regional trends in forest fragmentation, and any temporary negative natural resource management impacts would be negligible on a regional basis. Selection of Alternative B3 would have a beneficial effect on the terrestrial ecology on TVA public land and in the region. The greatest benefit would occur from selection of Alternative B2.

Aquatic Ecology

Alternatives B1, B2, and B3 would provide an opportunity to protect and enhance aquatic habitats by allocating the majority of parcels to Zone 3 (Sensitive Resource Management) or Zone 4 (Natural Resource Conservation). Under the 1983 Plan, these habitats have less specific, multiple allocated uses, and allow the protection or enhancement of aquatic habitats through the preservation of existing

natural shorelines, which offers a variety of cover types. The extent of woody shoreline cover on parcels allocated to Zones 3 and 4 is expected to increase in the future as natural succession continues. The littoral zone is the most productive habitat of a reservoir environment. Fish utilize littoral habitats because of their spawning requirements, the availability of submerged cover (i.e., rocks, logs, brush, etc.), and the presence of smaller fish and aquatic invertebrates as a food source for the fingerlings.

Forest, agricultural, and wildlife management activities in zones 3 or 4 could potentially affect aquatic ecology through runoff of nutrients and soils. These potential impacts would be avoided through careful planning and commitments in this EIS to limit the sizes of activities and use rigorous BMPs during implementation.

Allocation of TVA public land for developed Developed Recreation (Zone 6) will allow locations for public access for bank fishing, as well as the construction of fishing piers, artificial fish attractors and other fish habitat enhancements. Approval requirements for proposed developments, such as public parks, recreation areas, and water-access sites, in addition to permitting greater opportunity for public use, will require protection of important natural features. The quality of shoreline aquatic habitats would improve with the protective zones mentioned above through the enhanced opportunity for natural succession as well as protective vegetation management now required through TVA's SMP standards for private water-use facilities.

Development of the reservoir shoreline will continue under all three alternatives. Alternatives B1, B2, or B3 afford enhanced protection to aquatic resources fronting land allocated to Zone 7 (Residential Access) because of requirements set forth by SMI as described in Section 1.3 of this EIS. This provides for the preservation of some natural shoreline in areas of residential access. TVA public land fronting Zone 5 (Industrial/Commercial Development) can be maintained in a natural condition, since industrial/commercial development seldom requires extensive clearing of shoreline vegetation. TVA residential shoreline management requirements will also provide improved protection for existing natural shoreline conditions. Some negative aquatic habitat impacts will occur under either alternative but can be kept to an insignificant level with proper planning and by requiring protective measures during land use approvals. Because TVA has rated the aquatic habitat on Gunter'sville Reservoir only "fair" overall, impacts to near shoreline aquatic habitats will continue to be a major consideration in the proposed use of TVA public land under either alternative.

4.2.9 Socioeconomics

Comments received during the public scoping process indicated a preference for more TVA public land in protected categories and for recreational uses that required little or no development. In response to this public input, under Alternatives B1, B2 and B3, much less TVA public land would be allocated for

Industrial/Commercial Development (Zone 5). Under Alternative B1, about 403 acres would be available, while Alternatives B2 and B3 would have only about 338 and 327 acres, respectively. All of these are considerably less than the approximately 1,786 acres that would be available under Alternative A (the No Action Alternative). Most of the parcels included in this category are relatively small and are likely to be used only for reservoir access to back-lying properties which already have industrial development. However, other parcels could support important industrial or commercial development. Industrial or commercial use of these parcels, including access provided by small parcels, could result in important increases in income and employment in the area. The opportunity for such impacts is less under all the action alternatives than under Alternative A, the No Action Alternative. However, all alternatives provide opportunity for water-related industrial and commercial development. Any proposals for industrial or commercial use of TVA properties would receive appropriate environmental review when specific proposals are presented for TVA approval.

Under Alternative A (the No Action Alternative), more than 4,300 acres could be available for public and commercial recreation development. Under Alternative B2 about 2,300 acres would be available, and somewhat less under Alternatives B2 (1,647 acres) and B3 (1,703 acres). All of this land could be available for recreational development requiring capital expenditures and maintenance. Construction of facilities and use of the property for such purposes would have some positive impact on income and employment in the area. Much of the use, however, is likely to be by residents of the local area or adjoining counties limiting the degree of economic impact.

Only those parcels with existing access rights would be designated for residential access. These are areas that already have deeded access rights and, therefore, could be used for residential access under each alternative. Generally these are narrow strips along the reservoir that could provide access for residents on adjacent or back-lying properties. Some retirees might be attracted to these developments, especially if planned and marketed for retirees. To the extent that retirees are attracted from outside the area, there would be some increase in population and in local income and spending. Building of water access facilities might also have some positive impact on the local economy. There would be no difference between the alternatives with respect to impacts from residential development.

Most of the remaining TVA public land would be protected as either Zone 3 (Sensitive Resource Management) or Zone 4 (Natural Resource Conservation) areas. These areas may be used for informal recreation; such usage would be largely by residents of the local area or surrounding counties. Some occasional economic uses of these land could occur in conjunction with activities to maintain and improve forest health and wildlife habitat. These would include use of land for agriculture and forest management. Protection and good management of such land would enhance the scenic and environmental qualities of the area, thereby

improving the quality of life and making the area more attractive to potential residents and visitors. This attraction would have some indirect positive impacts on income and employment in the area.

4.2.10 Environmental Justice

There would be no important difference between the alternatives with regard to impacts on minority and low-income populations. Any major development project that might occur under the alternatives could have such impacts, although the likelihood is small due to the relatively small disadvantaged population in the area. However, any such developments that required TVA approval would receive the appropriate level of environmental review before they could be approved.

4.2.11 Recreation

Alternatives B1, B2, and B3 comprehensively address the existing physical characteristics of TVA public land being planned around Guntersville Reservoir, current recreational use patterns, public input, anticipated recreation needs, environmental consequences, and public values pertaining to recreational use of this property. Changes in management of some existing recreation areas and expressions of interest from other public or private agencies have created opportunities to consider new recreational uses and the potential for additional development. This is reflected in Alternative B1 through the increase in the amount of land allocated for recreation use from approximately 33,322 acres in Alternative A (4,308 acres for developed recreation use and 29,014 acres for informal public use) to 34,295 acres (an addition of approximately 2.9 percent) in Alternative B1 (2,307 acres for developed recreation use and 31,988 acres for informal public use). Alternative B2 has 1,648 acres allocated for developed recreation use and 32,781 acres for informal public use. Alternative B3 has 1,703 acres allocated for developed recreation use and 32,583 acres for informal public use.

The primary additions of new recreational land include approximately 3,141 acres of previously unplanned land at various locations on Guntersville Reservoir and 651 acres from designation changes on previously planned parcels. In addition, approximately 1,378 acres, known as the Murphy Hill site, will be available for various forms of informal recreation use. Under Alternative B2, additional recreational developments would not take place on Parcel 26a, north of Guntersville, and Parcels 257 and 257a, south of Guntersville, at Bridgeport Ferry (Parcel 154a), at the South Sauty Creek bridge (Parcel 200a), and at a site in downtown Guntersville that is now currently used for industrial purposes (Parcel 248).

According to the input received from the public during meetings and from questionnaires, there is a need for more formal and informal public recreation facilities on Guntersville Reservoir. At present, there are 1,109 acres of TVA public land available for public recreation use on Guntersville Reservoir. In

Alternative B1, there are 2,307 acres for public recreation use, a net decrease of 2,001 acres (approximately a 46.5 percent decrease) over the 1983 Plan. In Alternative B2, there are approximately 34,429 acres allocated for public recreation use in Zones 3,4, and 6 (1,647 acres for developed recreation use and 32,782 acres for various undeveloped recreational uses), which is a net increase of 1,107 acres over the 1983 plan.

There appears to be adequate boat storage on Guntersville Reservoir at this time. There are currently empty boat slips available in the existing marina facilities on Guntersville Reservoir. There have also been permits issued for boat slips which have not been built. Due to the large number of public boat launching facilities and other recreation facilities on Guntersville, the wide range of geographic locations of these facilities, and the lack of public feed back indicating a carrying capacity problem on Guntersville Reservoir, this was not considered to be an issue. As shown in the Socioeconomic section (Section 3.5 of this EIS), the population in this area is projected to increase at a greater rate over the next 10-15 years and this population increase will likely increase recreational activity on the reservoir.

4.3 Other Impacts

Noise

The greatest potential for community noise impacts comes from industrial and commercial development, commercial transportation, and, to a lesser extent, from recreational development. In comparing the land use allocations in Alternatives A, B1, B2, and B3, the potential for community noise impacts is substantially reduced because of the large decrease in land available for noise-producing activities compared to Alternative A. Alternatives B1 and B2 propose reducing the land available for Industrial/Commercial Development (Zone 5) by 1,383 and 1,448 acres or about 77 and 81 percent respectively. These changes would also reduce the potential for noise impacts from commercial transportation in those areas.

Additional reductions in potential community noise impacts will come from decreasing the number of acres allocated to Natural Resource Management (Zone 4) allocation and increasing the acres allocated to Sensitive Resource Management (Zone 3). The Natural Resource Management allocation will be reduced 3,105 acres for B1 and about 2,312 acres for B2 or about 12 percent and the Sensitive Resource Management allocation will increase 6,080 acres or about 150 percent.

Land allocated for commercial recreation—commercial marinas for example—will decrease if either Alternative B1 or B3 is approved. These reductions are about 2001 acres or 46 percent for B1 and B3 and 2661 acres or 62 percent for B2. The Residential Access (Zone 7) allocations of 542 acres for the action alternatives has no base for comparison, since residential was not a classification

in the 1983 allocation categories. Noise from new residential development should follow the established noise patterns of the reservoir. New residents will use the reservoir for recreation, such as boating, at the same time current users do, usually in the warm months and on weekends. This would cause an insignificant effect on the noise environment.

Allocated land for TVA Operations (Zone 2) expands 588 and 519 acres for Alternatives B1 and B2 which is about 13 and 12 percent respectively. The extent of potential local community noise impacts from future TVA operations would be examined during environmental reviews before any development is approved. During the reviews, noise mitigation commitments are added to the development plans—reducing them to an insignificant level—if there is a potential for community noise impacts. Under Alternatives B1 and B3, Parcel 40 is allocated to Zone 2 to allow for the expansion of the Guntersville Airport. A proposed runway extension would require a portion of TVA public land. Guntersville Airport is a general aviation facility, and the expansion is requested to allow its use by corporate jets. Noise levels from general aviation jets are lower than for large jets used in commercial air service. For general aviation facilities with only occasional jet operations, the Federal Aviation Administration generally assumes that noise levels above the Day-Night Average Sound Level (DNL) 65+ dBA contours are confined within the airport property. DNL is the 24-hour average sound level, in decibels, obtained from the accumulation of all events. Given the size of the airport and the only occasional use by corporate jets, TVA anticipates that the Guntersville Airport expansion would not result in exceedances of the DNL 65 dBA standard off of airport property. However, if the airport expansion is further entertained by the FAA, TVA would cooperate in the site-specific environmental review to ensure that nearby residences and schools would be protected from excessive noise levels. It is also expected that the City of Guntersville proposal would be compatible with zoning policies.

Based on the amount of TVA public land available for development and the additional environmental evaluations, there will be none or an insignificant increase in the potential community noise impacts from implementation of the action alternatives in comparison with Alternative A, with alternative B2 having the least impacts.

Air Quality

Industrial/Commercial Development—Detailed proposals and construction schedules have not been received; however, any new or expanding industrial or commercial facilities would be required to meet applicable federal and state requirements in effect at the time of their development or expansion. Any facilities on TVA public land or facilities in the surrounding area with potentially significant air pollutant emissions would be required to obtain an air quality permit from either the state of Alabama or the state of Tennessee. In general, the types of industries currently being attracted to cities and counties in the Guntersville area have insignificant impacts on regional air quality. The permit

application and review process would evaluate the magnitude of air emissions from the proposed source and from existing sources, meteorological factors that affect dispersion of the pollutants, and the potential for effects on areas with special air quality requirements such as nonattainment areas and Prevention of Serious Deterioration (PSD) Class I areas. If future proposed uses of TVA public land have air would be conducted at the appropriate level. Commitments or restrictions, such as covenants to mitigate potential impacts, could result from these reviews. Effects from site preparation and construction activities, from post-construction traffic, and from operation of minor sources would be similar to those discussed below for residential development, and the same state rules would apply.

Options for future use of the Bellefonte Nuclear Site (Parcel 131) are still being actively considered by TVA. Some of these uses would involve fossil fuels. If Bellefonte were repowered, past TVA studies such as the October 1997 Bellefonte Conversion FEIS found that ambient air quality standards would not likely be exceeded; however, potential emissions of sulfur dioxide would raise concerns for compliance with short-term Prevention of Significant Deterioration (PSD) Class I and Class II increments. It is expected that any option chosen for Bellefonte Conversion would be able to demonstrate compliance with environmental laws and regulations, and if needed, additional design and emission control options may be applied.

Residential Development—The Plan is designed to minimize direct, indirect and cumulative air emissions impacts resulting from any TVA allocation decisions including residential access. Pollution from fossil-fuel combustion in construction equipment, fugitive dust emissions from operation of this equipment during dry conditions, increased traffic during construction, and any open burning would cause some minor and temporary air quality degradation in the vicinity of the reservoir. However, state air pollution rules require construction projects to use reasonable precautions to prevent fugitive dust emissions and to avoid open burning under adverse conditions such as air quality advisories or fire alerts. After construction is completed, normal residential activities, such as using wood stoves, fireplaces, gas-powered, grounds-keeping equipment, and increased traffic, would contribute somewhat to deterioration in local air quality, but would have little or no impact on regional air quality.

Under Alternative A, any proposed industrial facilities, commercial facilities or residential access on TVA public land would continue to be evaluated on a case-by-case basis. There are 35 parcels that were designated for industrial sites or commercial development or have these types of existing facilities on them. The majority of these are, or would be expected to have, only minor effects, but several have potential for significant impacts on air quality, depending on the nature of any expansion of existing facilities or development of new facilities in the future. Topographical constraints would be expected for these as well. Appropriate level environmental reviews would be done to document the extent of

expected air quality impacts whenever an expansion or a new facility is proposed for any of these parcels. In addition, a large number of parcels were “previously unplanned,” and many of these have been experiencing or are expected to experience residential access.

Under Alternative B1, about 20 parcels are designated for Industrial/Commercial Development (Zone 5). Of these, most are expected to have the potential for only minor environmental impacts because of the nature of existing facilities and constraints such as existing covenants or space availability for potential expansions and/or new facilities. In such cases, an environmental review would be performed for each such expansion or development proposal and would document that insignificant impacts on air quality would be expected. Proposed development on five of the parcels would involve potential significant environmental impacts. These five cases are expected to require EA or EIS level environmental reviews in which potential air quality impacts and any mitigation measures or commitments would be documented for proposed expansion or development actions. Topographical constraints associated with nearby high terrain are particularly likely for four of these cases and a possible concern for the fifth case. Many of the parcels which were previously unplanned are allocated for Residential Access in Alternative B1 or B2. Proposals for residential access on land allocated to Residential Access (Zone 7) would be evaluated on a case-by-case basis.

Alternatives A, B1, B2, and B3 do not directly result in any significant impacts on air quality. Indirectly, there could be significant air quality impacts from specific future proposed actions on some parcels designated Industrial/Commercial Development (Zone 5). However, those proposed actions will be carefully reviewed for approval or disapproval, and impacts will be mitigated according to air quality permit requirements and any other appropriate commitments.

Alternative A has the potential for the greatest air quality impacts than the other alternatives because more industrial/commercial development is possible. Alternatives B1, B2, and B3 would significantly reduce the amount of acreage allocated for Industrial/Commercial Development (Zone 5), and would allocate the 125 parcels which were previously unplanned to one of the following zones: Developed Recreation, Residential Access, Natural Resource Conservation, Sensitive Resource Management, TVA Project Operations or Industrial/Commercial. Only 11 previously unplanned parcels are allocated for Industrial/Commercial Development under Alternatives B1 and B3, and all of the others would be precluded from such future proposed land uses. This would be more favorable for air quality than selection of Alternative A. Alternative B2 has the fewest commercial or industrial parcels, and would be the most favorable alternative from an air quality perspective.

4.4 Unavoidable Adverse Effects

Because of the requirement that site-specific environmental reviews will be conducted prior to implementation, there are currently few, if any, adverse environmental effects which cannot be avoided should Alternatives B1, B2, or B3 be implemented. However, regional development trends, such as residential shoreline development, will continue to result in losses of aquatic and terrestrial habitat. These losses would occur anyway and are not related to implementation of the Plan.

4.5 Irreversible and Irretrievable Commitments of Resources

Irretrievable use of nonrenewable resources (i.e., fuel, energy, and some construction materials) could occur under Alternatives A, B1, B2, and B3 due to residential shoreline development as well as commercial, industrial, and some types of recreational development. The residential development would result from region-wide population increase. This means that the same development could occur somewhere else in the region. Therefore, use of most (if not all) of these resources could occur somewhere else in the region to provide the same residential development services regardless of the alternative chosen.

As shoreline is converted to residential, commercial, industrial, and some types of recreational use, the land is essentially permanently changed and not available for agricultural, forestry, wildlife habitat, natural area, and some recreation uses in the foreseeable future. This is an irreversible commitment of land which would occur under all alternatives; over the long term, it would likely be greater in magnitude under Alternative A.

4.6 Energy Requirements and Conservation Potential

Energy is used by machines for fuel to maintain grassy areas on the dam reservation and by the operation of the hydroelectric plant located at Guntersville Dam. There are no short-term energy uses required for the dam reservation as it is already established.

Energy is also used by machines to maintain areas set aside for natural resource conservation. Although these activities are not likely to have much influence on regional energy use demands either, there would be some short-term energy use for fuel to conduct prescribed natural resource conservation activities such as mowing, timber management, controlled burning, disking, planting of small grain crops, etc. Alternative A would have a greater requirement for this type of energy use, since it contains the largest amount of acreage allocated for natural resource conservation.

A greater amount of TVA public land is allocated to a Sensitive Resource Management Zone in Alternatives B1, B2 and B3. Some areas set aside for protection of archeological sites could potentially be maintained by mowing, light

disking, or controlled burning. There would be some short-term energy use of fuel for machines to conduct these types of activities. The level of these activities is considered minimal.

4.7 Relationship of Short-term and Long-term Productivity

Commitments of the shoreline to residential access, commercial, industrial, and some types of recreational development are essentially long-term decisions that would decrease the productivity of land for agricultural, forest, wildlife, and natural area management. Long-term productivity decreases would likely be greatest under Alternative A. As described in earlier sections, the types of changes that occur with residential development would result in a decline in the habitat quality for some terrestrial species and increase the habitat for others. Many of the water-related impacts of shoreline development could be minimized by the use of appropriate controls on erosion, added nutrients, and pesticide input.

Increased development could occur under all alternative and result in population increase along the shoreline. There is a potential for small, long-term, socioeconomic productivity benefits from new jobs and income that would be the case, as long as the desirable features that prompted their move to the shoreline were maintained or enhanced.

4.8 Consistency With Local Plans

Guntersville, Scottsboro, Stevenson, Bridgeport, and South Pittsburg have zoned TVA public land as part of their local ordinances. Generally, these zoning designations are compatible with the uses that TVA has allocated in the proposed Plan under Alternatives B1, B2 or B3. For example, most residential access tracts are adjacent to land zoned for single-family residential in local zoning ordinances. In a few cases, tracts zoned residential by the city have been zoned as natural resource conservation by TVA, because residential access rights do not exist.

4.9 Proposed Mitigation Measures

TVA would consider the following proposed mitigation measures in preparing the Record of Decision:

1. Wetlands will be avoided on residential access properties on parcels 12, 69, and 22 and any portion of parcel 26a and 165 allocated for recreational development.
2. Recreational development on parcels 143, 154a, 159, and 168 will be designed to avoid or enhance interpretation of historic properties.
3. Agricultural licensing on Parcels 26a, 45, 121, 124, 132, and 260 will include buffers to avoid impacts to the reservoir and wetlands.
4. All land-disturbing activities shall be conducted in accordance with Best Management Practices as defined by Section 208 of the Clean Water Act and implementing regulations to control erosion and sedimentation. Forest management activities will be conducted in accordance with practices

- prescribed for forestry. Best Management Practices for agriculture, including maintenance of vegetative buffers, will be included in agricultural licenses.
5. Visual and water quality enhancement buffers, between 50 feet and 100 feet wide, will be provided to screen timber harvest areas from public thoroughfares and shorelines and to minimize the potential for sediments or other nonpoint source pollutants to enter Guntersville Reservoir.
 6. Controlled burns will be conducted in accordance with Tennessee open burning regulations.
 7. On Parcel 2, TVA would place special emphasis on visual analysis during consideration of any management activities.